IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.:   09/739,618 §
Filed: December 18, 2000 §
Inventor(s): §
John H. Howard §
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Title: Object-Based Storage §
Device with Improved §
Reliability and Fast Crash §
Recovery §
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§
§

Examiner: Duong, Thomas
Group/Art Unit: 2145
Atty. Dkt. No: 5181-59100

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Mailstop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request. This request is being filed with a notice of appeal. Independent claims 2, 8, 12, 22, and 29 are rejected under 35 U.S.C. § 102(b) as being anticipated by Kozakura, U.S. Patent No. 5,724,581 ("Kozakura"). Applicant sets forth the clear errors in the rejections below. Please note that for brevity, only the primary arguments directed mainly to the independent claims are presented, and that additional arguments, e.g., directed to the subject matter of the dependent claims, will be presented if and when the case proceeds to Appeal.

Claims 2, 12, 22, and 29

Applicant respectfully submits that each of independent claims 2, 12, 22, and 29 recites a combination of features not taught or suggested in the cited art. For example, claim 2 recites a combination of features including: "a non-volatile memory storing a

first inode locating said first file in said storage and also storing a journal comprising a list of committed inodes; and a block manager … configured to atomically update said first file in response to a commit of said first file by writing said second inode to said non-volatile memory, … record said second inode in said journal".

The present Office Action alleges that the inodes are taught in Kozakura as the page tables. Applicant respectfully disagrees. Page tables locate physical pages stored in the memory system of the computer system, mapping logical pages used by the software to physical pages (see, e.g., Kozakura, col. 1, lines 32-28). **Page tables that *map logical pages to physical pages in memory* have nothing to do with inodes that *locate files on a storage*.** Page tables cannot anticipate inodes, as they are completely different and are used for different purposes. Additionally, logical and physical pages are fixed in size (see, e.g., Kozakura col. 1, line 34), whereas files can have any size.

Kozakura teaches current page tables that locate the latest physical page storing the latest update and the shadow physical page storing data before the latest update. The current page table data structures cannot be a journal, since these are updated as transactions progress and thus do not comprise a list of committed inodes. Kozakura also teaches a backup page table that is created at a checkpoint. However, the backup page table is also not a list of committed inodes. Page tables merely map logical pages to physical pages. Thus, a backup page table created at a checkpoint is merely a snapshot of the current memory state. There is no list. Furthermore, the current state at checkpoint is merely the state of the current and shadow pages. These pages may generally comprise any combination of committed and uncommitted data, and thus are not committed inodes.

Furthermore, Kozakura's **checkpoints are not related to a commit command**. Rather, they are performed cyclically or at a given time (Kozakura, col. 2, lines 48-49), or when no transactions are in progress (Kozakura, col. 2, lines 59-61). There is no command. Rather, Kozakura's system creates checkpoints automatically, without any command.

For at least the above stated reasons, Applicant submits that the rejection of claim 2 over Kozakura is not supported, and should be withdrawn. Claims 3-7 depend from claim 2, and thus the rejection of these claims should be withdrawn for at least the above stated reasons as well. Each of claims 3-7 recite additional combinations of features not taught or suggested in the cited art.

Claim 12 recites a combination of features including: "atomically updating said first file by establishing said second inode as the inode for said first file, wherein said establishing comprises storing said second inode in a journal stored in a nonvolatile memory". The same teachings of Kozakura highlighted above with respect to claim 2 are relied on to reject claim 12. Therefore, the rejection of claim 12 over the alleged combination of Kozakura is also not supported, and should be withdrawn. Claims 13-20 depend from claim 12, and thus the rejection of these claims should be withdrawn for at least the above stated reasons as well. Each of claims 13-20 recite additional combinations of features not taught or suggested in the cited art.

Claim 22 recites a combination of features including: "a non-volatile memory storing a first inode locating a first version of a file in said storage and also storing a journal comprising a list of committed inodes; and a block manager … configured to atomically update the file, producing a second version of the file, in response to a commit of the file by writing said second inode to said non-volatile memory… and wherein said block manager is configured to record said second inode in said journal". The same teachings of Kozakura highlighted above with respect to claim 2 are relied on to reject claim 22. Therefore, the rejection of claim 22 over the alleged combination of Kozakura is also not supported, and should be withdrawn. Claims 23-27 depend from claim 22, and thus the rejection of these claims should be withdrawn for at least the above stated reasons as well. Each of claims 23-27 recite additional combinations of features not taught or suggested in the cited art.

Claim 29 recites a combination of features including: "atomically updating the file to the second version by establishing said second inode as the inode for the file,

wherein said <u>establishing comprises storing said second inode in a journal stored in a</u> <u>nonvolatile memory</u>". The same teachings of Kozakura highlighted above with respect to claim 2 are relied on to reject claim 29. Therefore, the rejection of claim 29 over the alleged combination of Kozakura is also not supported, and should be withdrawn. Claims 30-35 depend from claim 29, and thus the rejection of these claims should be withdrawn for at least the above stated reasons as well. Each of claims 30-34 recite additional combinations of features not taught or suggested in the cited art.

Claim 8

Applicant respectfully submits that independent claim 8 recites a combination of features not taught or suggested in the cited art. For example, claim 8 recites a combination of features including: "said first inode is stored in an inode file, and wherein <u>said inode file is identified by a master inode</u>, and wherein <u>said inode file is atomically</u> <u>updated with said second inode by writing said master inode subsequent to said commit</u> <u>command</u>".

The Office Action relies on the same teachings highlighted above with regard to claim 2 to allegedly teach the features of claim 8. No teachings of Kozakura cited in the rejection have anything to do with the above features. Furthermore, as noted above, the Office Action alleges that Kozakura's page tables correspond to inodes. However, there is no page table file, identified by a master page table, in Kozakura. Therefore, Kozakura cannot teach or suggest the above highlighted features of claim 8.

The above argument was presented in the Response filed October 12, 2006. The Response to Arguments section makes no attempt to address the above arguments. Applicant respectfully submits that claim 8 has not been properly rejected because the Office Action does not identify teachings alleged to anticipate the above highlighted features of claim 8.

For at least the above stated reasons, Applicant submits that the rejection of claim 8 over Kozakura is not supported, and should be withdrawn. Claims 9-10 depend from

claim 8, and thus the rejection of these claims should be withdrawn for at least the above stated reasons as well. Each of claims 9-10 recite additional combinations of features not taught or suggested in the cited art.

Applicant submits that the application is in condition for allowance, and an early notice to that effect is requested.

If any extensions of time (under 37 C.F.R. § 1.136) are necessary to prevent the above referenced application(s) from becoming abandoned, Applicant(s) hereby petition for such extensions. If any fees are due, the Commissioner is authorized to charge said fees to Meyertons, Hood, Kivlin, Kowert, & Goetzel, P.C. Deposit Account No. 501505/5181-59100/LJM.

Respectfully submitted,

/Lawrence J. Merkel/
Lawrence J. Merkel, Reg. #41,191
AGENT FOR APPLICANT(S)

Meyertons, Hood, Kivlin, Kowert, & Goetzel, P.C.
P.O. Box 398
Austin, TX 78767-0398
Phone: (512) 853-8800

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